

Maureen Dowd’s love life: a statistical analysis

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Ms MKW of Washington, DC, was the third reader to point out to me an article by Maureen Dowd of the New York Times, so it’s evidently time to give Ms Dowd’s thesis a closer look. She explains that educated women have a disadvantage on the marriage market because boys prefer girls who are nonthreatening, less smart, and less successful. She cites an article by John Schwartz, also of the NYT, that cites an article by Stephanie Brown of UMich. Ms Dowd explains that this study demonstrated that males have a genetic aversion to dominant females.

You know I have no patience for ‘they did a study’ hearsay, so here’s the data [Brown and Lewis, 2004].

The experiment is pretty simple: researcher shows to subject a photo with a story attached. The key point of interest in the story is that the person in the photo is a subordinate, a coworker, or a superior. The subject is then asked if the person in the photo is attractive for a one-time sexual encounter, for an activity partner (“would you like to exercise with this person”), or for a long-term relationship. Nine means absolutely and zero means absolutely not.

Generally, you can see that when the boys rated girls, the mean floats around 6.5; when girls rate boys, the mean floats around 3.5. For the “would you exercise with him” question, the girls’ means went up about a point. So policy

Type of rating	Investment type	Target sex	Participant sex	Dominance		
				Assistant	Coworker	Supervisor
Opposite sex	Short-term	Female	Male	6.8 ± 2.3	6.3±3.2	6.2±2.6
		Male	Female	3.2±2.6	3.1±2.6	3.44±2.9
	Long-term	Female	Male	6.4±2.1	4.9±2.2	4.2±2.7
		Male	Female	3.2±2.2	3.2±2.3	3.1±2.2
	Affiliation	Female	Male	6.8±1.9	6.5±1.6	5.2±2.5
		Male	Female	4.7±2.0	4.2±1.9	4.5±1.8
Same sex	Affiliation	Male	Male	4.2±1.5	3.7±1.6	4.5±2.4
		Female	Female	6.1±2.4	5.7±2.0	6.1±1.5

Figure 1: Average (S.D.) males’ and females’ ratings of target person (nine-point Likert scale: not at allvery much)

implication number one: boys, ask her out for frisbee.

Looking a little more closely, we see the anomaly that the paper and two New York Times articles are based on: boys rating an assistant for a long-term relationship rated her at the usual mean of 6.4; boys rating a boss rated her at a mean of 4.2.

That's it: a 2.2 point difference. The number after the \pm sign is the standard deviation, and you can see that the difference is approximately one standard deviation for either side. The authors ran F-tests to determine that this is significant. A t-test, and I contend basic intuition about numbers one standard deviation apart, would find that they are not significantly different.

I was a little surprised by the use of the F-test here, because we're comparing two means, which just screams of t-test to me. I checked some undergrad readings, and yes, this is the correct procedure for ANOVA on a multi-way hypothesis. Here's the summary: the t-test is generally preferable, but it can only test for a difference between two numbers. To compare three means, or to test the hypothesis 'all the numbers in this subset of the table are not equal', you'll need the F-test. So to check how males rate subordinate, equal, or boss females would need an F-test, but to compare males rating subordinate or boss females, you can take your pick. Evidently, you'll get different results with the data they gathered. Which is all just to say that it is valid to apply a t-test and it fails to reject the hypothesis that the means of the two treatments are identical.

Part of this may come from the experiment's design. Ms Dowd is interested in the question 'do boys like smart and successful girls', but the narrative in the study was:

Please imagine that you have just taken a job and that Jennifer/John is your immediate supervisor. She/he is the person you report to on a daily basis. She/he has the responsibility for disciplining absence or poor performance on your part, for rewarding reliable or creative performance...

Firing power is a whole 'nother bundle of goods beyond generally successful. If you want to claim that the data above as showing a statistically significant difference, then you can just as easily take the results to mean that boys are more concerned about their careers, or that girls are more trusting of those who could help or hurt them.

Finally, and this is the least of my issues here, this is a study of 120 male and 208 female UCLA undergrads. The sample size of a few hundred is normal to large for this sort of work; for example, this academic study of pick-up lines had only 142 F and 63 M subjects. But to say that UCLA undergrads speak for all of *homo sapiens* seems a bit much.

The discussion links this to evolutionary theories about boys trying to work out who the father of a baby is. Our NY Times correspondents confidently cited the evolutionary results as proven by this paper. Me, I will refrain from commenting, since I'm unfamiliar with the evolutionary lit. But the structure of the paper itself is that nothing about how boys evolved is proven. Instead,

the researchers ran a survey, and stated that it supports a certain existing hypothesis in the lit. Appropriately modest.

Unfortunately, Ms Brown is not so understated in the press, and in another Dowd editorial, Ms Brown is directly quoted as stating “Powerful women are at a disadvantage in the marriage market”, and of course, the press eats it up.

I have no clue how to find the study Ms Dowd attributes to “researchers at four British universities”, so I can’t comment on whether it correctly supports Ms Dowd’s claims or not. An SF Chronicle article says that that study only surveyed people born in 1921(!?).

Assortative matching

Since the micro-level literature left us flat, let’s look at the demographic regularities. These are all based on education, which we take as a proxy for intelligence and success and what-have-you.

Educational attainment means less marriage Well-educated women marry less. They’re too busy working at their high-paying careers. On a related note, motherhood also takes a dive with higher education. [See the tables in Rose [2003], but bear in mind that most of them have a truncated Y-axis.]

People in school often marry each other Yes, I know it’s obvious. When people in (or just out of) school randomly float around and bump into each other, they are more likely to show a high correlation in spouses’ education levels than older out-of-schools bumping into and then marrying random people of broader educational attainment. [Mare, 1991] So Ms Dowd’s problem is not that she’s well-educated but that she didn’t get somebody during or just after grad school. Now that she’s in the real world, the number of boys she will meet in the upper tail of the educational distribution will take a nosedive relative to the number she was meeting in grad school. But notice again that one could explain this with statistical mechanics (particles bumping into each other) without any recourse to a ‘boys seek out dumb chicks’ story.

Level of education given married Kremer [1997] looks at the aggregate scale: some quick math shows that the correlation between spouses’ educations was 0.649 in 1940 and 0.620 in 1990, indicating more disparity in spouses’ education levels. But I find this to be too broad to answer the question we have. Education rates are going up over this period, marriage rates are shifting, and our question is primarily about the well-educated: do they show more or less assortative matching? For this, we look at page 21 of [Mare, 1991], who provides more direct, disaggregated numbers:

Here’s what we’re looking at: I took the column for boys and girls with ≥ 16 years of education (i.e., a college education) and boys with 12 years of education (high school) in these periods, and calculated what percentage of them are matching with a spouse of the years of schooling at left. Each column sums

mate's schooling	boys, 1940; >16 yrs	boys, 85-87; >16 yrs	girls, 1940; >16 years	girls, 85-87; >16 years	boys, 1940; 12 yrs	boys, 85-87; 12 yrs
<10	5.75	0.40	6.98	0.22	14.13	3.03
10-11	3.01	0.93	3.35	0.58	18.69	8.17
12	31.46	12.96	6.98	14.44	57.21	63.14
13-15	28.04	25.19	17.88	17.75	7.89	17.74
>16	31.74	60.52	64.8	67.01	2.08	7.91

Figure 2: Level of education given married

	1940	1985	2004
% boys w/college ed+	5.39	23.14	29.41
% girls w/college ed+	3.71	16.00	26.11
College girl/college boy ratio	0.69	0.77	0.96

Figure 3: Educational attainment over time

to 100%. So in 1940, 31.74% of married college-educated boys were married to college-educated girls, while in the mid-80s, 60.52% of married boys were wed to college-educated girls. That is huge, and we see a corresponding drop in the college-educated who marry the high-school educated.

The high school educated boys were still mostly marrying high school educated girls in the second period, but both of the categories about marrying better educated girls showed an increase, and both of the categories about marrying less educated girls showed a decline. So this data says that even those with a high school diploma showed a stronger preference for an educated wife.

For college-educated girls, the rate at which the married among them is matching to a college-educated boy is not moving nearly as much—2.2 percent in forty years. [I leave as an exercise to the reader the fun of designing a data set where all of the above facts are simultaneously true. Hint: the unmarrieds have not been mentioned in any of the data above.]

Overall, in 1940, 55.6% of married women were sub-high school educated; in the mid-80s, 11.1% were—about five times fewer. In 1940, 3.85% of married women were college educated; in the mid-80s, 22.37% were—a proportion over five times larger. [Mare, 1991]

But, you retort, the number of college-educated girls has gone up significantly. Which is true, and the post-college girl-boy ratio is closer to 1.0 than it was in the 1940s, but the shift in this ratio is not at the scale of the shifts above. Here's the data (from historical tables A-1 of the Census Bureau's educational attainment page)

You can see that the rate of college (plus postgrad) completion is way up all around, and the college-completed girl/boy ratio has gone from 69% to 96%. This is great, but is clearly only a fraction of the the doubling and quintupling of the percentages that we saw above.

Probability married given level of education Table two is from 20 years ago; I'm mostly using it because it's so nicely broken down and says something about who boys are marrying. You are no doubt wondering about girls' odds today. The answer: college educated girls are doing increasingly better relative to high-school educated girls. Rose [4, table 3, p 42] defines the "success gap" as the probability that a college educated or more gal is married minus the probability that an exactly high school educated gal is married. In 1980, the success gap was 10.0 percent for her sample (U.S. women 40-44); in 1990, the gap was 5.0 percent; and in 2000 it was -0.7 percent. That is, in 2000, a 40-44 year old college graduate girl was more likely to be married than a comparable high school graduate girl. So this measure also fails to indicate any retrogression to the old days of dumb girls.

To summarize my story of Ms Dowd's love life: educated women marry less. People who have been out of school a long time are less likely to marry those who match them, just as a matter of statistics. A person who only wants to date the top 5% on any scale is going to be rejecting 19 out of 20 comers by assumption. This sums up to mean that a single, graduate-educated gal over 40 will have a much tougher time marrying a graduate-educated boy than she did twenty years ago. Also, a single graduate-educated boy will have a tougher time marrying a graduate-educated girl than he did 20 years ago. However, none of this has to do with cultural trends regarding what boys want: the trend since the 1940s has been toward boys of all levels marrying increasingly well-educated girls, and any education penalty that may have existed for women in the past has evaporated. There will always be the arse at the bar who turns tail at the first sound of education—and I as an overeducated boy have at times had exactly the same experience—but that does not quite make for a national trend.

PS Our educated liberal desire to find a mate of equal abilities directly contradicts our educated liberal desire to reduce inequality. Kremer [1997] argues against this one, but it's so intuitive that the common economic wisdom takes it as all but given: assortative mating increases class inequality. Back in the day, the poor girl could marry the rich boy and thus become un-poor. But now, Ms Dowd thinks it is a condescending affront that the rich boy marry anyone but a rich girl, and that means that poor girl is going to stay poor. We lament the widening of class boundaries, but what could widen them more than a New York Times editorial excoriating upper class boys for associating with lower class girls?

Reader comment: Ms. DH of Ann Arbor, MI refers the reader to Kalmijn [1998].

References

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